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WEB BLIGHT OF BEANS

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Web blight *(Corticium microsclerotia* (Matz) Web.) has been most frequently found in Florida during the summer rainy period when the daily maximum temperatures were about 90° F. and minimum about 70° F. It has been found to destroy in many instances the late spring crop in June when the summer rains began early, and the early fall crop in November when the rainy season was prolonged.

This disease of beans has been found in the principal bean growing sections of the state. It is more or less prevalent in central Florida from the Suwannee River to Lake Okeechobee. It has not been officially reported from other states but has occurred in certain tropical countries.

Web blight has been observed during several seasons causing almost total losses of plants in certain fields and similar losses of picked pods in packed hampers under conditions favorable to the fungus. One 60-acre field growing in the late spring showed 50 percent loss. Other plantings have been rapidly killed about the time of the first picking or shortly thereafter, depending largely on the extent of rains at that time. Four hundred hampers of beans picked from infected plants and left in hampers in the field until the next day, because a late afternoon rain interfered with transpotation, developed nesting to such an extent that they were rejected the next day at the packinghouse.

The fungus survives from season to season on plant debris in cultivated fields, along undisturbed fence rows and ditches and on living plants. The small, light weight sclerotia are easily detached and scattered from the diseased plants. Under favorable environmental conditions the disease increases in severity very rapidly and sclerotia are produced in great numbers. The sclerotia have been observed to cover the entire surface of leaves, petioles, stems and even the soil surface for several inches around the infected plants where they appear as a coarse brown dust.

The prevalence of the disease is affected very little by the age of the plants. However, young succulent plants are easily killed and usually disintegrate before many sclerotia are produced, while older woody plants remain standing even though completely defoliated and often dead.

Wind, rain, running water and heavy dews are the natural means of dissemination of the spores and sclerotia of the fungus. The sclerotia are also scattered by mechanical means during cultivation by animals, field implements and pickers. Large, bushy plants which retain humidity favor the development of epidemics.

This disease has been found on snap beans of the Giant Stringless, Bountiful, Black Valentine and other varieties and on Fordhook Lima beans. It is not confined to these hosts, however, since in Nature it has been found on a number of grasses, weeds and woody perennials, including

blackberry, elderberry and fig. Under favorable conditions it will attack most of the cultivated vegetables.

Symptoms.—Early stages of web blight on bean leaves are indicated by the appearance of small, water-soaked spots on any portion of the blade. Invaded cells die by the time the spot is 1/32 of an inch in diameter. Such spots are much lighter colored than the surrounding unaffected tissue and appear to have been scalded. These areas later become tan-brown, surrounded by a darker border, enlarge up to about 1 inch in diameter and frequently appear somewhat zonate. As the infected area becomes larger, light tan colored hyphae develop on the two surfaces of the spot, being more numerous on the side of the leaf that was continuously in a more humid atmosphere. These hyphae grow rapidly over the surface of the non-infected areas of the blade, gradually killing it. Under favorable conditions the hyphae spread from leaf to leaf, stem, petiole, flower and fruit, tying them together with a web or mat of tenacious mycelial strands. In this stage the disease is characterized by the presence of many small brown sclerotia and spider-web-like mycelium on the stems, pods and foliage. During dry weather the growth is mostly inconspicuous except on dead leaves. During humid weather the white hyphae spread out fan-shaped from the point of infection. The disease spreads from points of primary infection by hyphae and sclerotia.

The pods are attacked in all stages of their development. The early infections on the young pods appear as light tan, irregularly shaped specks, which often enlarge and coalesce, killing the pod. On more mature pods the spots are dark brown, more or less circular, slightly zonate, definitely sunken and with a dark border. In this stage the spots appear almost identical with anthracnose. When numerous they involve the entire pod; when scattered, the pod spots expand up to the width of the pod and about an inch in length. The seed in the pods directly beneath such lesions are always affected.

Control.—On a basis of observations made at the time of occurrence of web blight and its relations to weather conditions, it would appear that damage from the disease could be reduced by not planting beans during the period between June 1 and Sept. 1 in fields where the disease has occurred previously. Use 20-80 copper-lime dust at the rate of 25 to 40 pounds per acre per application or 1-2-50 bordeaux mixture at the rate of 100 gallons per acre for bean plants up to blooming time. Do not apply fungicides after blooming time because of the danger of making the blossoms shed and of the discoloration of the pods.

The parasite is not seed-carried. It may survive in a bean field from season to season if no cultivation is practiced. Beans grown in the fall, winter and spring should be alternated with some other crop, such as corn or crotalaria. To prevent the accumulation of sclerotia, which are easily scattered considerable distances, infected plants should be destroyed as soon as possible after they are abandoned.

No resistance in bean varieties has been observed.